

Form PTO-1449 (modified)

FEB 06 2003

Atty. Docket No.
MBHB00-801-F
(RPI 400/003)Serial N.
09/740,332

List of Patents and Publications to Applicant's

Applicant
Blatt et al.SUPPLEMENTAL INFORMATION DISCLOSURE
STATEMENT

(Use several sheets if necessary)

Filing Date:
December 18, 2000Group:
1632U.S. Patent Documents
See Page 1Foreign Patent Documents
See Page 1Other Art
See Page 1

U.S. Patent Documents

Exam. Init.	Ref. Des.	Document Number	Date	Name	Class	Sub Class	Filing Date of App.
JDS	*	5,817,638	10/06/1998	Hostetler et al.			
↓	*	5,856,459	01/05/1999	Frank et al.			
↓	*	5,980,886	11/09/1999	Kay et al.			

U.S. Patent Applications

Exam. Init.	Ref. Des.	Application Number	Filing Date	Name			

Foreign Patent Documents

Exam. Init.	Ref. Des.	Document Number	Date	Country	Class	Sub Class	Translation Yes/No

Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

Exam. Init.	Ref. Des.	Citation
	1	International Search Report from PCT/US02/09187
JDS	*	Chen et al., Regulation of hepatitis B virus ENI enhancer activity by hepatocyte-enriched transcription factor HNF3," <i>Virology</i> 205:127-132 (1994). <i>Not a reference</i>

EXAMINER:


JDS

DATE CONSIDERED:

10-17-03

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.

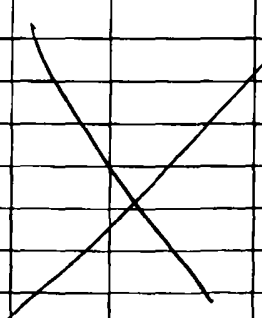
INFORMATION DISCLOSURE STATEMENT — PTO-1449 (MODIFIED)

FORM PTO-1449 (Rev. 2-32)	U. S. Department of Commerce Patent and Trademark Office	Atty. Docket No. 00,801-F	Serial No. 09/740,332
 INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Applicant: Blatt et al.	
		Filing Date: December 18, 2000	Group: 1632

U.S. PATENT APPLICATION DOCUMENTS

No.	Examiner Initials	Date	Document Number	Filing Date	Name	Publication Date if Appropriate
1.	JDS		0 9 6 1 1 9 3 1	07/07/00	Blatt et al.	
*			0 9 2 5 7 6 0 8	02/25/99	Blatt et al.	
*			0 9 2 7 4 5 5 3	03/23/99	Blatt et al.	
*			0 9 5 0 4 2 3 1	02/15/00	Blatt et al.	
*			6 0 1 0 0 8 4 2	09/18/98	Blatt et al.	
*			6 0 0 8 3 2 1 7	04/27/98	Blatt et al.	
*	✓		6 0 0 8 2 4 0 4	04/20/98	Thompson et al.	

U. S. PATENT DOCUMENTS

No.	Examiner Initials	Date	Document Number	Filing Date	Name	Class	Subclass	Publication Date if Appropriate
2.	JDS		5 5 8 9 3 3 2	05/09/94	Shih et al.			12/31/96
3.			5 7 4 1 6 7 9	09/16/94	George et al.			04/21/98
4.			5 8 4 9 9 0 2	11/21/96	Woolf et al.			12/15/98
5.			5 9 8 9 9 1 2	12/15/98	Arrow et al.			11/23/99
*			4 9 8 7 0 7 1	12/03/86	Cech, et al.			01/22/91
*			5 3 3 4 7 1 1	06/02/92	Sproat et al.			08/02/94
*	✓		5 5 2 5 4 6 8	08/01/94	McSwiggen, et al.			06/11/96

EXAMINER <i>JDS</i>	DATE CONSIDERED <i>10-16-03</i>
---------------------	---------------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

No.	Examiner Initials	Date	Document Number	Filing Date	Name	Class	Subclass	Publication Date if Appropriate
*	<i>QDS</i>		5 6 1 0 0 5 4	01/13/94	Draper, et al.			03/11/97
*			5 6 2 4 8 0 3	10/13/94	Noonberg, et al.			04/29/97
*			5 6 2 7 0 5 3	05/02/95	Usman et al.			05/06/97
*			5 6 3 1 3 5 9	10/11/94	Chowrira, et al.			05/20/97
*			5 6 7 2 6 9 5	09/23/91	Eckstein et al.			09/30/97
*			5 7 1 6 8 2 4	04/20/95	Beigelman et al.			02/10/98
*			5 8 6 9 2 5 3	12/26/96	Draper			02/09/99

FOREIGN PATENT DOCUMENTS

No.	Examiner Initial	Date	Document Number	Name	Date	Country	Translation	
							Yes	No
6.	<i>QDS</i>		WO 89/02439	Arnold et al.	03/23/89	PCT		
7.			WO 95/06731	Usman et al.	03/09/95	PCT		
8.			WO 95/11304	Usman et al.	04/27/95	PCT		
9.			WO 95/11910	Dudycz et al.	05/04/95	PCT		
10.			WO 95/15187	Usman et al.	08/05/93	PCT		
*			EP 0360257	Hampel, et al.	03/28/90	EPO		
*			JP 07231784	Yamada et al.	09/05/95	JP		
*			WO 91/03162	Rossi, et al.	03/21/91	PCT		
*			WO 92/07065	Eckstein, et al.	04/30/92	PCT		
*			WO 93/15187	Usman, et al.	08/05/93	PCT		
*			WO 93/23057	Thompson, et al.	11/25/93	PCT		
*			WO 93/23569	Draper, et al.	11/25/93	PCT		
*			WO 94/02595	Sullivan, et al.	02/03/94	PCT		
*			WO 95/04818	Draper, et al.	02/16/95	PCT		

EXAMINER <i>JD Schuy</i>	DATE CONSIDERED <i>10-17-03</i>
--------------------------	---------------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

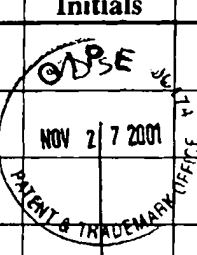
No.	Examiner Initial	Date	Document Number	Name	Date	Country	Translation	
							Yes	No
*	JDS		WO 96/10390	Ansell, et al.	04/11/96	PCT		
*			WO 96/10391	Choi, et al.	04/11/96	PCT		
*			WO 96/10392	Holland, et al.	04/11/96	PCT		
*			WO 96/18419	Kay, et al.	06/20/96	PCT		
*			WO 96/18736	Beigelman, et al.	06/20/96	PCT		
*			WO 96/22689	Pyle, et al.	08/01/96	PCT		
*			WO 97/26270	Wincott et al.	07/24/97	PCT		
*			WO 97/32018	Barber, et al.	09/04/97	PCT		
*			WO 98/13526	Woolf et al.	04/02/98	PCT		
*			WO 98/28317	Matulic-Adamic et al.	07/02/98	PCT		
*			WO 98/58057	Ludwig et al.	12/23/98	PCT		
*			WO 98/58058	Ludwig, et al.	12/23/98	PCT		
*			WO 99/16307	Vierling	04/08/99	PCT		
*			WO 99/16871	Eckstein et al.	04/08/99	PCT		
*		✓	WO 99/55857	Beigelman et al.	11/04/99	PCT		

OTHER DOCUMENTS

No.	Examiner Initials	Date	
11.	✓ JDS		Breaker et al., "A DNA enzyme with Mg ²⁺ -dependent RNA phosphocsterase activity," <u>Chemistry & Biology</u> 2(10):655-660 (1995)
12.	↓		Breaker, "Catalytic DNA: in training and seeking employment" <u>Nature Biotechnology</u> 17:422-423 (1999)
13.	↓		Brown et al., "Secondary structure of the 5' nontranslated regions of hepatitis C virus and pestivirus genomic RNAs" <u>Nucleic Acids Res.</u> 20:5041:5045 (1992)
14.	↓		Cload and Schepartz, "Polyether Tethered Oligonucleotide Probes," <u>J. Am. Chem. Soc.</u> 113:6324-6326 (1991)

EXAMINER	J.D. Schmitz	DATE CONSIDERED	10/17/03
----------	--------------	-----------------	----------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

No.	Examiner Initials	Date	
15.			Crooke, "Advances in Understanding the Pharmacological Properties of Antisense Oligonucleotides," <i>Advances in Pharmacology</i> 40:1-49 (1997)
16.			Crooke, "Antisense Therapeutics," <i>Biotechnology and Genetic Engineering Reviews</i> 15:121-157 (1998)
17.			Crooke, "[1] Progress in Antisense Technology: The End of the Beginning" <i>Methods Enzymol</i> 313:3-45 (2000)
18.			Delihis et al., "Natural antisense RNA/target RNA interactions: Possible models for antisense oligonucleotide drug design," <i>Nature Biotechnology</i> 15:751-753 (1997)
19.			Durand et al., "Circular Dichroism Studies of an Oligodeoxyribonucleotide Containing a Hairpin Loop Made of a Hexaethylene Glycol Chain: Conformation and Stability," <i>Nucleic Acids Research</i> 18:6353-6359 (1990)
20.			Egholm et al., "PNA hybridizes to complementary oligonucleotides obeying the Watson-Crick hydrogen-bonding rules," <i>Nature</i> 365:566-568 (1993)
21.			Ferentz and Verdine, "Disulfid Cross-Linked Oligonucleotides," <i>J. Am. Chem. Soc.</i> 113:4000-4002 (1991)
22.			Gold et al., Diversity of Oligonucleotide Functions," <i>Annu. Rev. Biochem.</i> 64:763-797 (1995)
23.			Honda et al., "A Phylogenetically Conserved Stem-Loop Structure at the 5' Border of the Internal Ribosome Entry Site of Hepatitis C Virus Is Required for Cap-Independent Viral Translation" <i>J. Virol.</i> 73:1165-1174 (1999)
24.			Jaschke et al., "Automated Incorporation of Polyethylene Glycol into Synthetic Oligonucleotides," <i>Tetrahedron Letters</i> 34:301-304 (1993)
25.			Ma et al., "Design and Synthesis of RNA Miniduplexes via a Synthetic Linker Approach. 2. Generation of Covalently Closed, Double-Stranded Cyclic HIV-1 TAR RNA Analogs with High Tat-Binding Affinity," <i>Nucleic Acids Research</i> 21:2585-2589 (1993)
26.			Ma et al., "Design and Synthesis of RNA Miniduplexes via a Synthetic Linker Approach," <i>Biochemistry</i> 32:1751-1758 (1993)
27.			Macejak et al., "Inhibition of Hepatitis C Virus (HCV)-RNA-Dependent Translation and Replication of a Chimeric HCV Poliovirus Using Synthetic Stabilized Ribozymes," <i>Hepatology</i> 31(3):769-776 (2000)
28.			McCurdy et al., "Deoxyoligonucleotides with Inverted Polarity: Synthesis and Use in Triple-Helix Formation" <i>Nucleosides & Nucleotides</i> 10:287-290 (1991)
29.			Nakamaye and Eckstein, "AUA-Cleaving Hammerhead Ribozymes: Attempted Selection for Improved Cleavage," <i>Biochemistry</i> 33:1271-1277 (1994)

EXAMINER <u>JD Schmitz</u>	DATE CONSIDERED <u>10-17-03</u>
----------------------------	---------------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

No.	Examiner Initials	Date	
30.	SC/14 NOV 7 2001		Okamoto et al., "Nucleotide sequence of the genomic RNA of hepatitis C virus isolated from a human carrier: comparison with reported isolates for conserved and divergent regions" <i>J. General Virol.</i> 72:2697-2704 (1991)
31.			Ono et al., "DNA Triplex Formation of Oligonucleotide Analogues Consisting of Linker Groups and Octamer Segments That Have Opposite Sugar-Phosphate Backbone Polarities," <i>Biochemistry</i> 30:9914-9921 (1991)
32.			Richardson and Schepartz, "Tethered Oligonucleotide Probes. A Strategy for the Recognition of Structured RNA," <i>J. Am. Chem. Soc.</i> 113:5109-5111 (1991)
33.			Santoro et al., "RNA Cleavage by a DNA Enzyme with Extended Chemical Functionality" <i>J. Am. Chem. Soc.</i> , 122:2433-2439 (2000)
34.			Schmajuk et al., "Antisense Oligonucleotides with Different Backbones," <i>The Journal of Biological Chemistry</i> 274:21783-21789 (1999)
35.			Seela and Kaiser, "Oligodeoxyribonucleotides containing 1,3-propanediol as nucleoside substitute," <i>Nucleic Acids Research</i> 15:3113-3129 (1987)
36.			Simmonds, "Variability of Hepatitis C Virus" <i>Hepatology</i> , 21:570-583 (1995)
37.			Stein and Cheng, "Antisense Oligonucleotides as Therapeutic Agents - Is the Bullet Really Magical?" <i>Science</i> 261:1004-1288 (1993)
38.			Szostak and Ellington, "Ch. 20 - In Vitro Selection of Functional RNA Sequences," in <i>The RNA World</i> , edited by Gesteland and Atkins, Cold Spring Harbor Laboratory Press, pp. 511-533 (1993)
*			Moore and Sharp, "Site-Specific Modification of Pre-mRNA: The 2'-Hydroxyl Groups at the Splice Sites," <i>Science</i> 256:992-996 (1992)
*			Alter, et al., "Chronic Consequences of Non-A, Non-B Hepatitis" <i>Current Perspectives in Hepatology</i> , 83-89 (1989)
*			Bartel and Szostak, "Isolation of New Ribozymes From a Large Pool of Random Sequences," <i>Science</i> 261:1411-1418 (1993)
*			Beaucage and Iyer, "The Functionalization of Oligonucleotides Via Phosphoramidite Derivatives," <i>Tetrahedron</i> 49:1925-1963 (1993)
*			Beaudry and Joyce, "Directed Evolution of an RNA Enzyme," <i>Science</i> 257:635-641 (1992)
*			Beigelman et al., "Chemical Modification of Hammerhead Ribozymes," <i>J. Biol. Chem.</i> 270:25702-25708 (1995)
*			Bellon et al., "Amino-Linked Ribozymes: Post-Synthetic Conjugation of Half-Ribozymes," <i>Nucleosides & Nucleotides</i> 16:951-954 (1997)
*	✓		Bellon et al., "Post-synthetically Ligated Ribozymes: An Alternative Approach to Iterative Solid Phase Synthesis," <i>Bioconjugate Chem.</i> 8:204-212 (1997)

EXAMINER <i>JD Schuch</i>	DATE CONSIDERED <i>10-17-03</i>
---------------------------	---------------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

No.	Examiner Initials	Date	
*	JDS		Borden, "Interferons - Expanding Therapeutic Roles" <i>New Eng. J. Med.</i> , 1992; 326: 1491-92.
*	NOV 27 2001		Breaker and Joyce, "Inventing and improving ribozyme function: rational design versus iterative selection methods," <i>TIBTECH</i> 12:268-275 (1994)
*			Breaker, "Are engineered proteins getting competition from RNA?" <i>Current Opinion in Biotechnology</i> 7:442-448 (1996)
*			Burgin et al., "Chemically Modified Hammerhead Ribozymes with Improved Catalytic Rates," <i>Biochemistry</i> 35:14090-14097 (1996)
*			Burlina et al., "Chemical Engineering of Rnase Resistant and Catalytically Active Hammerhead Ribozymes," <i>Bioorganic & Medicinal Chemistry</i> 5:1999-2010 (1997)
*			Caruthers et al., "Chemical Synthesis of Deoxyoligonucleotides and Deoxyoligonucleotide Analogs," <i>Methods in Enzymology</i> 211:3-19 (1992)
*			Cech, "Ribozymes and Their Medical Implications," <i>JAMA</i> 260:3030-3034 (1988)
*			Chartrand et al., "An oligodeoxyribonucleotide that supports catalytic activity in the hammerhead ribozyme domain," <i>Nucleic Acids Research</i> 23(20):4092-4096 (1995)
*			Chebath and Revel "The 2-5 A System: 2-5 A Synthetasis, Isospecies and Functions" <i>Interferon. Principles and Medical Applications</i> 225-236 (1992)
*			Chen et al., "Multitarget-Ribozyme Directed to Cleave at up to Nine Highly Conserved HIV-1 env RNA Regions Inhibits HIV-1 Replication-Potential Effectiveness Against Most Presently Sequenced HIV-1 Isolates," <i>Nucleic Acids Research</i> 20:4581-4589 (1992)
*			Choo et al., "Isolation of a cDNA Clone Derived from a Blood-Borne Non-A, Non-B Viral Hepatitis Genome," <i>Science</i> 244:359-362 (1989)
*			Chowrira and Burke, "Extensive Phosphorothioate Substitution Yields Highly Active and Nuclease- Resistant Hairpin Ribozymes," <i>Nucleic Acids Research</i> 20:2835-2840 (1992)
*			Chowrira et al., "In Vitro and in Vivo Comparison of Hammerhead, Hairpin, and Hepatitis Delta Virus Self-Processing Ribozyme Cassettes," <i>J. Biol. Chem.</i> 269:25856-25864 (1994)
*			Christoffersen and Marr, "Ribozymes as Human Therapeutic Agents," <i>J. Med. Chem.</i> 38:2023-2037 (1995) (also referred to as Christofferson and Marr)
*			Christofferson et al., "Application of computational technologies to ribozyme biotechnology products," <i>Journal of Molecular Structure (Theochem)</i> 311:273-284 (1994) (Christoffersen)
*			Couture and Stinchcomb, "Anti-gene therapy: the use of ribozymes to inhibit gene function," <i>Trends In Genetics</i> 12:510-515 (1996)

EXAMINER <i>JDS</i>	DATE CONSIDERED <i>10-17-03</i>
---------------------	---------------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

No.	Examiner Initials	Date	
	<i>JD</i>		Cribier et al., "In vitro infection of peripheral blood mononuclear cells by hepatitis C virus," <u>Journal of General Virology</u> 76:2485-2491 (1995)
	<i>NOV 27 2001</i>		D'Amico et al., "Survival and Prognostic Indicators in Compensated and Decompensated Cirrhosis," <u>Digestive Diseases and Sciences</u> 31(5):468-475 (1986)
			Dash et al., "Transfection of HepG2 Cells with Infectious Hepatitis C Virus Genome," <u>American Journal of Pathology</u> 151(2):363-373 (1997)
*			Davis et al., "Treatment of Chronic Hepatitis C with Recombinant Interferon Alfa," <u>The New England Journal of Medicine</u> 321(22):1501-1506 (1989)
*			Davis, et al., "Current Status of Interferon Therapy for Chronic Hepatitis C: A Hepatologist's Perspective" <u>Infectious Agents and Disease</u> , 1993; 2: 150-154.
*			Diaz et al., "Structure of the Human Type-I Interferon Gene Cluster Determined from a YAC Clone Contig," <u>Genomics</u> 22:540-552 (1994)
*			Dreyfus, "Restriction Ribozymes?" <u>Einstein Quarterly Journal of Biology and Medicine</u> 6:92-93 (1988)
*			Dropulic et al., "Functional Characterization of a U5 Ribozyme: Intracellular Suppression of Human Immunodeficiency Virus Type I Expression," <u>Journal of Virology</u> 66:1432-1441 (1992)
*			Dusheiko et al., "Sequence variability of hepatitis C virus and its clinical relevance," <u>Journal of Viral Hepatitis</u> 1:3-15 (1994)
*			Earnshaw et al., "Modified Oligoribonucleotides as Site-Specific Probes of RNA Structure and Function," <u>Biopolymers</u> 48:39-55 (1998)
*			Elroy-Stein and Moss, "Cytoplasmic Expression System Based on Constitutive Synthesis of Bacteriophage T7 RNA Polymerase in Mammalian Cells," <u>Proc. Natl. Acad. Sci. USA</u> 87:6743-6747 (1990)
*			Farci et al., "A Long-Term Study of Hepatitis C Virus Replication in Non-A, Non-B Hepatitis," <u>The New England Journal of Medicine</u> 325(2):98-104 (1991)
*			Feldstein et al., "Two sequences participating in the autolytic processing of satellite tobacco ringspot virus complementary RNA," <u>Gene</u> 82:53-61 (1989)
*			Fish et al., "The Role of Three Domains in the Biological Activity of Human Interferon- α ," <u>Journal of Interferon Research</u> 9:97-114 (1989)
*			Forster and Altman, "External Guide Sequences for an RNA Enzyme," <u>Science</u> 249:783-786 (1990)
*			Freier et al., "Improved free-energy parameters for predictions of RNA duplex stability," <u>Proc. Natl. Acad. Sci. USA</u> 83:9373-9377 (1986)
*			Galun et al., "Hepatitis C Virus Viremia in SCID \rightarrow BNX Mouse Chimera," <u>The Journal of Infectious Diseases</u> 172:25-30 (1995)
*	<i>✓</i>		Gao and Huang, "Cytoplasmic Expression of a Reporter Gene by Co-Delivery of T7 RNA Polymerase and T7 Promoter Sequence with Cationic Liposomes,"

EXAMINER <i>JD Schuch</i>	DATE CONSIDERED <i>10-17-03</i>
---------------------------	---------------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

No.	Examiner Initials	Date	
	PE		<u>Nucleic Acids Research</u> 21:2867-2872 (1993)
*	JDS NOV 27 2001		Good et al., "Expression of small, therapeutic RNAs in human nuclei," <u>Gene Therapy</u> 4:45-54 (1997)
*	PAINT & TRADEMARK		Griffin et al., "Group II intron ribozymes that cleave DNA and RNA linkages with similar efficiency, and lack contacts with substrate 2'-hydroxyl groups," <u>Chemistry & Biology</u> 2:761-770 (1995)
*			Guerrier-Takada et al., "The RNA Moiety of Ribonuclease P Is the Catalytic Subunit of the Enzyme," <u>Cell</u> 35:849-857 (1983)
*			Guo and Collins, "Efficient <i>trans</i> -cleavage of a stem-loop RNA substrate by a ribozyme derived from <i>Neurospora</i> VS RNA," <u>EMBO J.</u> 14:368-376 (1995)
*			Hampel and Tritz, "RNA Catalytic Properties of the Minimum (-)sTRSV Sequence," <u>Biochemistry</u> 28:4929-4933 (1989)
*			Hampel et al., "'Hairpin' Catalytic RNA Model: Evidence for Helices and Sequence Requirement for Substrate RNA," <u>Nucleic Acids Research</u> 18:299-304 (1990)
*			Harada et al., "Characterization of an established human hepatoma cell line constitutively expressing non-structural proteins of hepatitis C virus by transfection of viral cDNA," <u>Journal of General Virology</u> 76:1215-1221 (1995)
*			Haseloff and Gerlach, "Sequences required for self-catalysed cleavage of the satellite RNA of tobacco ringspot virus," <u>Gene</u> 82:43-52 (1989)
*			Haseloff and Gerlach, "Simple RNA Enzymes with New and Highly Specific Endoribonuclease Activities," <u>Nature</u> 334:585-591 (1988)
*			Hayashi et al., "In Vivo Transfection of Rat Liver with Hepatitis C Virus cDNA Using Cationic Liposome-Mediated Gene Delivery" <u>Princess Takamatsu Sym.</u> 25:1430149 (1995)
*			Hertel et al., "Numbering System for the Hammerhead," <u>Nucleic Acids Research</u> 20:3252 (1992)
*			Hiramatsu et al., "HCV cDNA transfection to HepG2 cells," <u>Journal of Viral Hepatitis</u> 4:61-67 (1997)
*			Hoofnagle et al., "The treatment of chronic viral hepatitis," <u>The New England Journal of Medicine</u> 336(5):347-356 (1997).
*			Horisberger "MX Protein: Function and Mechanism of Action" <u>Interferon. Principles and Medical Applications</u> 215-224 (1992)
*			Houghton et al., "Molecular Biology of the Hepatitis C Viruses: Implications for Diagnosis, Development and Control of Viral Disease," <u>Hepatology</u> 14(2):381-388 (1991)
*	↓		Hunziker et al., "Nucleic Acid Analogues: Synthesis and Properties, in Modern Synthetic Methods," <u>VCH</u> , 331-417

EXAMINER	JDS Schuyt	DATE CONSIDERED	10-17-03
----------	------------	-----------------	----------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

No.	Examiner Initials	Date	
*	<i>JD</i> NOV 27 2001 PATENT & TRADEMARK OFFICE		Iacovacci et al., "Molecular Characterization and Dynamics of Hepatitis C Virus Replication in Human Fetal Hepatocytes Infected <i>In Vitro</i> ," <u>Hepatology</u> 26(5):1328-1337 (1997)
*			Iacovacci et al., "Quantitation of hepatitis C virus RNA production in two human bone marrow-derived B-cell lines infected <i>in vitro</i> ," <u>Institut Pasteur/Elsevier</u> 148:147-151 (1997)
*			Ishiwata et al., "Physical-Chemistry Characteristics and Biodistribution of Poly(ethylene glycol)-Coated Liposomes Using Poly(oxyethylene) Cholesteryl Ether," <u>Chem. Pharm. Bull.</u> 43:1005-1011 (1995)
*			Ishizaka et al., "Isolation of Active Ribozymes from an RNA Pool of Random Sequences Using an Anchored Substrate RNA," <u>Biochemical and Biophysical Research Communication</u> 214(2):403-409 (1995)
*			Ito et al., "Cultivation of hepatitis C virus in primary hepatocyte culture from patients with chronic hepatitis C results in release of high titre infectious virus," <u>Journal of General Virology</u> 77:1043-1054 (1996)
*			Izant and Weintraub, "Constitutive and Conditional Suppression of Exogenous and Endogenous Genes by Anti-Sense RNA," <u>Science</u> 229:345-352 (1985)
*			Jaeger et al., "Improved Predictions of Secondary Structures for RNA," <u>Proc. Natl. Acad. Sci. USA</u> 86:7706-7710 (1989)
*			Jeffries and Symons, "A Catalytic 13-mer Ribozyme," <u>Nucleic Acids Research</u> 17:1371-1377 (1989) (also referred to as Jefferies)
*			Johnson et al., "How Interferons Fight Disease," <u>Scientific American</u> , pp. 68-75 (May 1994)
*			Joyce et al., "Amplification, mutation and selection of catalytic RNA," <u>Gene</u> 82:83-87 (1989)
*			Joyce, "Directed Molecular Evolution," <u>Scientific American</u> 267:90-97 (1992)
*			Karpeisky et al., "Highly Efficient Synthesis of 2'-O-Amino Nucleosides And Their Incorporation in Hammerhead Ribozymes," <u>Tetrahedron Letters</u> 39:1131-1134 (1998)
*			Kashani-Sabet et al., "Reversal of the Malignant Phenotype by an Anti- <i>ras</i> Ribozyme," <u>Antisense Research & Development</u> 2:3-15 (1992)
*			Kato et al., "Molecular structure of the Japanese hepatitis C viral genome," <u>Federation of European Biochemical Societies</u> 280(2):325-328 (1991)
*			Kato et al., "Susceptibility of Human T-Lymphotropic Virus Type I Infected Cell Line MT-2 Hepatitis C Virus Infection ¹ ," <u>Biochemical and Biophysical Research Communications</u> 206(3):863-869 (1995)
*	✓		Kawamura et al., "Transgenic Expression of Hepatitis C Virus Structural Proteins in the Mouse," <u>Hepatology</u> 25(4):1014-1021 (1997)

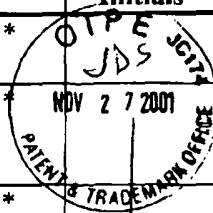
EXAMINER <i>JD Schmitz</i>	DATE CONSIDERED <i>10-17-03</i>
----------------------------	---------------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

No.	Examiner	Date	
*	Initials NOV 18 2001 PATENT & TRADEMARK OFFICE		Kim and Cech, "Three-dimensional model of the active site of the self-splicing rRNA precursor of <i>Tetrahymena</i> ," <u>Proc. Natl. Acad. Sci. USA</u> 84:8788-8792 (1987)
*			Koike et al., "Expression of hepatitis C virus envelope proteins in transgenic mice," <u>Journal of General Virology</u> 76:3031-3038 (1995)
*			Kore, et al., "Sequence specificity of the hammerhead ribozyme revisited; the NIH rule", <u>Nucleic Acids Research</u> , 26(18):4116-4120 (1998).
*			Kumar and Ellington, "Artificial evolution and natural ribozymes," <u>FASEB J.</u> 9:1183-1195 (1995)
*			Lasic and Needham "The 'Stealth' Liposome: A Prototypical Biomaterial," <u>Chemical Reviews</u> 95:2601-2627 (1995)
*			Lasic and Papahadjopoulos, "Liposomes Revisited," <u>Science</u> 267:1275-1276 (1995)
*			Lee et al., "Stimulation of Natural Killer Cell Activity and Inhibition of Proliferation of Various Leukemic Cells by Purified Human Leukocyte Interferon Subtypes," <u>Cancer Research</u> 42:1312-1316 (1982)
*			Leinbach et al., "Substrate Specificity of the NS3 Serine Proteinase of Hepatitis C Virus as Determined by Mutagenesis at the NS3/NS4A Junction," <u>Virology</u> 204:163-169 (1994)
*			Leventhal et al., "Long-Term Response of Recurrent Respiratory Papillomatosis to Treatment with Lymphoblastoid Interferon Alfa-n1," <u>The New England Journal of Medicine</u> 325(9):613-617 (1991)
*			L'Huillier et al., "Cytoplasmic Delivery of Ribozymes Leads to Efficient Reduction in α -Lactalbumin mRNA Levels in C1271 Mouse," <u>EMBO J.</u> 11:4411-4418 (1992)
*			Liang et al., "Viral Pathogenesis of Hepatocellular Carcinoma in the United States," <u>Hepatology</u> 18(6):1326-1333 (1993)
*			Lieber et al., "Stable High-Level Gene Expression in Mammalian Cells by T7 Phage RNA Polymerase," <u>Methods Enzymol.</u> 217:47-66 (1993)
*			Lieber, et al., "Elimination of Hepatitis C Virus RNA in Infected Human Hepatocytes by Adenovirus-Mediated Expression of Ribozymes" <u>J. Virology</u> , 1996; 70(12): 8782-8791.
*			Limbach et al., "Summary: the modified nucleosides of RNA," <u>Nucleic Acids Research</u> 22(12):2183-2196 (1994)
*			Liszewicz et al., "Inhibition of Human Immunodeficiency Virus Type 1 Replication by Regulated Expression of a Polymeric Tat Activation Response RNA Decoy as a Strategy for Gene Therapy in AIDS," <u>Proc. Natl. Acad. Sci. U.S.A.</u> 90:8000-8004 (1993)

EXAMINER JD Schuy	DATE CONSIDERED 10-17-03
----------------------	-----------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

No.	Examiner Initials	Date	
*			Liu et al., "Cationic Liposome-mediated Intravenous Gene Delivery," <u>J. Biol. Chem.</u> 270(42):24864-24870 (1995)
*			Long and Uhlenbeck, "Kinetic characterization of intramolecular and intermolecular hammerhead RNAs with stem II deletions," <u>Proc. Natl. Acad. Sci. USA</u> 91:6977-6981 (1994)
*			Lu et al., "Poliovirus chimeras replicating under the translational control of genetic elements of hepatitis C virus reveal unusual properties of the internal ribosomal entry site of hepatitis C virus," <u>Proc. Natl. Acad. Sci. USA</u> 93:1412-1417 (1996)
*			Mahato et al., "Physicochemical and Disposition Characteristics of Antisense Oligonucleotides Complexed with Glycosylated Poly(L-lysine)," <u>Biochemical Pharmacology</u> 53:887-895 (1997)
*			Marcellin et al., "Recombinant Human α -Interferon in Patients with Chronic Non-A, Non-B Hepatitis: A Multicenter Randomized Controlled Trial from France," <u>Hepatology</u> 13(3):393-397 (1991)
*			McGarry and Lindquist, "Inhibition of heat shock protein synthesis by heat-inducible antisense RNA," <u>Proc. Natl. Acad. Sci. USA</u> 83:399-403 (1986)
*			Mesmaeker et al., "Novel Backbone Replacements for Oligonucleotides," <u>American Chemical Society</u> , pp. 24-39 (1994)
*			Michels and Pyle, "Conversion of a Group II Intron into a New Multiple-Turnover Ribozyme that Selectively Cleaves Oligonucleotides: Elucidation of Reaction Mechanism and Structure/Function Relationships," <u>Biochemistry</u> 34:2965-2977 (1995)
*			Milligan and Uhlenbeck, "Synthesis of Small RNAs Using T7 RNA Polymerase," <u>Methods Enzymol.</u> 180:51-62 (1989)
*			Mizuno et al., "Virion-like Structures in HeLa G Cells Transfected with the Full-Length Sequence of the Hepatitis C Virus Genome," <u>Gastroenterology</u> 109:1933-1940 (1995)
*			Mizutani et al., "Characterization of Hepatitis C Virus Replication in Cloned Cells Obtained from a Human T-Cell Leukemia Virus Type 1-Infected Cell Line, MT-2," <u>Journal of Virology</u> 70(10):7219-7223 (1996)
*			Mizutani et al., "Long-Term Human T-Cell Culture System Supporting Hepatitis C Virus Replication," <u>Biochemical and Biophysical Research Communications</u> 227:822-826 (1996)
*			Moriya et al., "Hepatitis C virus core protein induces hepatic steatosis in transgenic mice," <u>Journal of General Virology</u> 78:1527-1531 (1997)
*			Nakajima et al., "Characterization of Long-Term Cultures of Hepatitis C Virus," <u>Journal of Virology</u> 70(5):3325-3329 (1996)

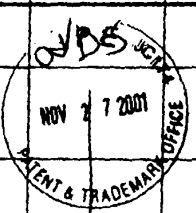
EXAMINER <i>JD Schuch</i>	DATE CONSIDERED <i>10-17-03</i>
---------------------------	---------------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

No.	Examiner Initials	Date	
*	JDS NOV 27 2001 PATENT & TRADEMARK OFFICE		Nakazono et al., "Inhibition of Hepatitis B Virus Replication by Targeted Pretreatment of Complexed Antisense DNA <i>In Vitro</i> ," <u>Hepatology</u> 23(6):1297-1303 (1996)
*			Nathans and Smith, "Restriction Endonucleases in the Analysis and Restructuring of DNA Molecules," <u>Ann. Rev. Biochem.</u> 44:273-293 (1975)
*			Noonberg et al., <i>In vivo</i> generation of highly abundant sequence-specific oligonucleotides for antisense and triplex gene regulation," <u>Nucleic Acids Research</u> 22(14):2830-2836 (1994)
*			Ohkawa et al., "Activities of HIV-RNA Targeted Ribozymes Transcribed From a 'Shot-Gun' Type Ribozyme-trimming Plasmid," <u>Nucleic Acids Symp. Ser.</u> 27:15-16 (1992)
*			Ohkawa et al., "Cleavage of viral RNA and inhibition of viral translation by hepatitis C virus RNA-specific hammerhead ribozyme <i>in vitro</i> ," <u>Journal of Hepatology</u> 27:78-84 (1997)
*			Ojwang et al., "Inhibition of Human Immunodeficiency Virus Type 1 Expression by a Hairpin Ribozyme," <u>Proc. Natl. Acad. Sci. USA</u> 89:10802-10806 (1992)
*			Oku et al., "Real-time analysis of liposomal trafficking in tumor-bearing mice by use of positron emission tomography," <u>Biochimica et Biophysica Acta</u> 1238:86-90 (1995)
*			Orgel, "Selection <i>in vitro</i> ," <u>Proc. R. Soc. London B.</u> 205:435-442 (1979)
*			Ozes et al., "A Comparison of Interferon-Con1 with Natural Recombinant Interferons- α : Antiviral, Antiproliferative, and Natural Killer-Inducing Activities" <u>J. Interferon Res.</u> 12:55-59 (1992)
*			Pasquinelli et al., "Hepatitis C Virus Core and E2 Protein Expression in Transgenic Mice," <u>Hepatology</u> 25(3):719-727 (1997)
*			Perreault et al., "Mixed Deoxyribo- and Ribo-Oligonucleotides with Catalytic Activity," <u>Nature</u> 344:565-567 (1990)
*			Perrotta and Been, "Cleavage of Oligoribonucleotides by a Ribozyme Derived from the Hepatitis δ Virus RNA Sequence," <u>Biochemistry</u> 31:16-21 (1992)
*			Pestka et al., "Interferons and Their Actions," <u>Ann. Rev. Biochem.</u> 56:727-777 (1987)
*			Pestka, "[1] Interferon from 1981 to 1986," <u>Methods in Enzymology</u> 119:3-15 (1986)
*			Pfeffer and Strulovici, "Transmembrane Secondary Messengers for IFN α/β Interferon. Principles and Medical Applications 151-160 (1992)
*	✓		Pichlmayr, et al., "Indications for Liver Transplantation Hepatobiliary Malignancy" <u>Hepatology</u> , 1994; 20: 33S-40S.

EXAMINER JDS Schurty	DATE CONSIDERED 10-17-03
----------------------	--------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

No.	Examiner Initials	Date	
*			Pieken et al., "Kinetic Characterization of Ribonuclease-Resistant 2'-Modified Hammerhead Ribozymes," <u>Science</u> 253:314-317 (1991)
*			Rossi et al., "Ribozymes as Anti-HIV-1 Therapeutic Agents: Principles, Applications, and Problems," <u>Aids Research and Human Retroviruses</u> 8:183-189 (1992)
*			Rubenstein, "Multiple Interferon Subtypes: The Phenomenon and Its Relevance" <u>J. Interferon Res.</u> , 1987; 7: 545-551.
*			Sakamoto et al., "Intracellular Cleavage of Hepatitis C Virus RNA and Inhibition of Viral Protein Translation by Hammerhead Ribozymes," <u>J. Clin. Invest., The American Society for Clinical Investigation, Inc.</u> 98(12):2720-2728 (1996)
*			Samuel "The RNA-Dependent P1/eIF-2 α Protein Kinase" <u>Interferon. Principles and Medical Applications.</u> 237-250 (1992)
*			Santoro and Joyce, "A general purpose RNA-cleaving DNA enzyme," <u>Proc. Natl. Acad. Sci. USA</u> 94:4262-4266 (1997)
*			Sarver et al., "Ribozymes as Potential Anti-HIV-1 Therapeutic Agents" <u>Science</u> 247:1222-1225 (1990)
*			Scanlon et al., "Ribozyme-Mediated Cleavage of c-fos mRNA Reduces Gene Expression of DNA Synthesis Enzymes and Metallothionein," <u>Proc. Natl. Acad. Sci. USA</u> 88:10591-10595 (1991)
*			Scaringe et al., "Chemical synthesis of biologically active oligoribonucleotides using β -cyanoethyl protected ribonucleoside phosphoramidites," <u>Nucl Acids Res.</u> 18:5433-5441 (1990)
*			Seipp et al., "Establishment of persistent hepatitis C virus infection and replication <i>in vitro</i> ," <u>Journal of General Virology</u> 78:2467-2476 (1997)
*			Shabarova et al., "Chemical ligation of DNA: The first non-enzymatic assembly of a biologically active gene," <u>Nucleic Acids Research</u> 19:4247-4251 (1991)
*			Sherlock, "Viral hepatitis," <u>The Lancet</u> 339:802 (1992)
*			Simmonds et al., "Identification of genotypes of hepatitis C virus by sequence comparisons in the core, E1 and NS-5 regions," <u>Journal of General Virology</u> 75:1053-1061 (1994)
*			Sullenger and Cech, "Tethering Ribozymes to a Retroviral Packaging Signal for Destruction of Viral RNA," <u>Science</u> 262:1566-1569 (1993)
*			Szostak, "In Vitro Genes," <u>TIBS</u> 17:89-93 (1993)
*			Tagawa et al., "Infection of human hepatocyte cell lines with hepatitis C virus <i>in vitro</i> ," <u>Journal of Gastroenterology and Hepatology</u> 10:523-527 (1995)
*			Taira et al., "Construction of a novel RNA-transcript-trimming plasmid which can be used both <i>in vitro</i> in place of run-off and (G)-free transcriptions and <i>in vivo</i> as multi-sequences transcription vectors," <u>Nucleic Acids Research</u> 19:5125-5130

EXAMINER 	DATE CONSIDERED 10-17-03
--	--------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

McDonnell Boehnen Hulbert & Berghoff
300 South Wacker Drive, Fl. 32
Chicago, IL 60606
Telephone: (312) 913-0001

MBHB00.01-F
RPI NO. 400.003
S/N: 09/740,332
Filing Date: 12/18/00

No.	Examiner Initials	Date	
			(1991)
*	JDS		Takahashi et al., "Natural Course of Chronic Hepatitis C," <u>The American Journal of Gastroenterology</u> 88(2):240-243 (1993)
*			Takehara et al., "Expression of the Hepatitis C Virus Genome in Rat Liver After Cationic Liposome-Mediated <i>In Vivo</i> Gene Transfer," <u>Hepatology</u> 21:746-751 (1995)
*			Tang and Breaker, "Examination of the catalytic fitness of the hammerhead ribozyme by in vitro selection," <u>RNA</u> 3:914-925 (1997)
*			Thompson et al., "Improved accumulation and activity of ribozymes expressed from a tRNA-based RNA polymerase III promoter," <u>Nucleic Acids Research</u> 23:2259-2268 (1995)
*			Tong et al., "Evidence for Hepatitis C Viral Infection in Patients With Primary Hepatocellular Carcinoma," <u>West J Med</u> 160:133-138 (1994)
*			Tong et al., "Prediction of Response During Interferon Alfa 2b Therapy in Chronic Hepatitis C Patients Using Viral and Biochemical Characteristics: A Comparison," <u>Hepatology</u> 26(6):1640-1645 (1997)
*			Tong et al., "Treatment of Chronic Hepatitis C With Consensus Interferon: A Multicenter, Randomized, Controlled Trial," <u>Hepatology</u> 26(3):747-754 (1997)
*			Trinchet et al., "Carcinome Hépatocellulaire: Traitement par Chimioembolisation Artérielle," <u>Presse Med</u> 23(18):831-3 (1994)
*			Turner et al., "Improved Parameters for Prediction of RNA Structure," <u>Cold Spring Harbor Symposia on Quantitative Biology Volume LII</u> , pp. 123-133 (1987)
*			Turner et al., "Free Energy Increments for Hydrogen Bonds in Nucleic Acid Base Pairs," <u>J. Am. Chem. Soc.</u> 109:3783-3785 (1987)
*			Uhlenbeck, "A Small Catalytic Oligoribonucleotide," <u>Nature</u> 328:596-600 (1987)
*			Usman and Cedergren, "Exploiting the chemical synthesis of RNA," <u>TIBS</u> 17:334-339 (1992)
*			Usman and McSwiggen, "Ch. 30 - Catalytic RNA (Ribozymes) as Drugs," <u>Annual Reports in Medicinal Chemistry</u> 30:285-294 (1995)
*			Usman et al., "Automated Chemical Synthesis of Long Oligoribonucleotides Using 2'-O-Silylated Ribonucleoside 3'-O-Phosphoramidites on a Controlled-Pore Glass Support: Synthesis of a 43-Nucleotide Sequence Similar to the 3'-Half Molecule of an <i>Escherichia coli</i> Formylmethionine tRNA," <u>J. Am. Chem. Soc.</u> 109:7845-7854 (1987)
*			Vaish et al., "Isolation of Hammerhead Ribozymes with Altered Core Sequences by <i>in Vitro</i> Selection," <u>Biochemistry</u> 36:6495-6501 (1997)
*			Valli et al., "Detection of a 5' UTR variation in the HCV genome after long-term <i>in vitro</i> infection," <u>Institut Pasteur/Elsevier</u> 146:285-288 (1995)

EXAMINER	JDS	DATE CONSIDERED	10-17-03
----------	-----	-----------------	----------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

McDonnell Bochen Hultbert & Berghoff
300 South Wacker Drive, Fl. 32
Chicago, IL 60606
Telephone: (312) 913-0001

MBHB00.01-F
RPI NO. 400.003
S/N: 09/740,332
Filing Date: 12/18/00

No.	Examiner Initials	Date	
*	JDS		Ventura et al., "Activation of HIV-Specific Ribozyme Activity by Self-Cleavage," <u>Nucleic Acids Research</u> 21:3249-3255 (1993)
*			Verma and Eckstein, "Modified Oligonucleotides: Synthesis and Strategy for Users," <u>Annu. Rev. Biochem.</u> 67:99-134 (1998)
*			Wang et al., "Translation of Human Hepatitis C Virus RNA in Cultured Cells Is Mediated by an Internal Ribosome-Binding Mechanism," <u>Journal of Virology</u> 67(6):3338-3344 (1993)
*			Weerasinghe et al., "Resistance to Human Immunodeficiency Virus Type 1 (HIV-1) Infection in Human CD4 ⁺ Lymphocyte-Derived Cell Lines Conferred by Using Retroviral Vectors Expressing an HIV-1 RNA-Specific Ribozyme," <u>Journal of Virology</u> 65:5531-5534 (1994)
*			Welch et al., "A potential therapeutic application of hairpin ribozymes: <i>in vitro</i> and <i>in vivo</i> studies of gene therapy for hepatitis C virus infection," <u>Gene Therapy</u> 3:994-1001 (1996)
*			Wincott et al., "Synthesis, deprotection, analysis and purification of RNA and ribozymes," <u>Nucleic Acids Research</u> 23(14):2677-2684 (1995)
*			Wincott et al., "A Practical Method for the Production of RNA and Ribozymes," <u>Methods in Molecular Biology</u> 74:59-69 (1997)
*			Yamamoto et al., " <i>In Vivo</i> Transfection of Hepatitis C Virus Complementary DNA Into Rodent Liver by Asialoglycoprotein Receptor Mediated Gene Delivery," <u>Hepatology</u> 22(3):847-855 (1995)
*			Yoo, et al., "Transfection of a Differentiated Human Hepatoma Cell Line (Huh7) with In Vitro-Transcribed Hepatitis C Virus (HCV) RNA and Establishment of a Long-Term Culture Persistently Infected with HCV" <u>J. Virol.</u> , 1995; 69(1): 32-38.
*			Yu et al., "A Hairpin Ribozyme Inhibits Expression of Diverse Strains of Human Immunodeficiency Virus Type 1," <u>Proc. Natl. Acad. Sci. USA</u> 90:6340-6344 (1993)
*			Zaug et al., "The <i>Tetrahymena</i> Ribozyme Acts Like an RNA Restriction Endonuclease," <u>Nature</u> 324:429-433 (1986)
*			Zhou et al., "Synthesis of Functional mRNA in Mammalian Cells by Bacteriophage T3 RNA Polymerase," <u>Mol. Cell. Biol.</u> 10:4529-4537 (1990)

EXAMINER	DATE CONSIDERED
JDS	10-17-03

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

McDonnell Bochen Hulbert & Berghoff
300 South Wacker Drive, Fl. 32
Chicago, IL 60606
Telephone: (312) 913-0001

MBHB00.01-F
RPI NO. 400.003
S/N: 09/740,332
Filing Date: 12/18/00